THE CHLORITE FAMILY OF ARTIFACTS

by
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An outstanding display of both bright and muted colors, usually in various patterns, provides a reference point for the array of prehistoric artifacts made of chlorite. The chlorite family of colorful minerals, with a chemical nameplate of iron aluminum magnesium silicate hydroxide, are usually displayed in variegated and mottled compositions. Collectors often identify their chlorite artifacts based on their vivid colors and vitreous oily surfaces. The author decided to research the many apparent chlorite mineral hues to determine if they all are really versions of chlorite and if so why the material and color compositions are so diverse.

Raw chlorite was used sparingly as a crafting material throughout prehistory especially for the manufacture of both ornamental and utilitarian artifacts such as pick, winged and other forms of bannerstones and pipes. It is noteworthy that the always oily feeling chlorite material was carefully selected for only certain special purpose artifacts, especially those that were prominently displayed while in use. It seems plausible that many of these artifacts may have been served largely as status symbols. Any functional chlorite artifacts would have been of limited value given their fragile nature. Most have with specific gravities of 2.6 to 3.4 and would not tolerate extended periods of abrasive use or even extended exposure. Some of the chlorite bannerstones would have been subject to substantial physical damage if used as atlatl weights.

The material composition of the family of chlorites

The name, chlorite, is a generic term applied to a group or family of minerals usually referred to as a subset of a larger silicate group of minerals. Chlorites in their most identifiable forms are the result of the alteration of primary dark rock minerals. Chlorites are primarily found in weakly metamorphosed materials and form from the modification of clay-rich sedimentary rocks and from the alteration of pyroxenes, amphiboles and micas. Chlorites typically have flaky not well defined microscopic crystals. Some examples feature large individual tabular to platy crystals. All have a basal cleavage due to their stacked structure. Chlorites are typically recognized as inclusions in or coatings on other minerals especially crystals of magnetite, hornblende, epidote, calcite and dolomite. Quartz is usually present in chlorite impregnated minerals as separate lenses or veins. Chlorite inclusions in their most typical and authentic form appear in a very strong green color, also yellow green, blue green or very dark green colors despite the relatively small amount of material that actually constitutes the inclusion. The chlorite inclusions often form as bands or masses sometimes associated with silvery mica schists. There are a number of minerals and a variety of multi-colored mineral compounds that have similar compositions which are considered chlorites. For example one form of chlorite features a trace amount of chromium. The chromium content gives this version of chlorite its bright lavender to deep crimson red color. This scheme was one of the colorful chlorite raw materials sourced by prehistoric artisans. In most cases unpatinated chlorites have a shiny luster and an oily feel.

In summary chlorites usually exist in small amounts as part of a family of altered minerals. Their different mineral compositions account for their many color variations including maroons, oranges, purples, yellows, creams, gray/blacks and browns. Green chlorites appear to be the most recognizable or diagnostic hues. And green chlorites seem to be the most popular color among collectors.

The following are chlorite artifacts from several pre-Columbian periods. In several cases the chlorite hues are hard to discern due to their darker shades.

Figure 1 shows three examples, an undrilled expanded center gorget and two pick bannerstones. The expanded center specimen has a typical rounded upper surface, blocked off ends (slightly scooped out on the bottom) and a flat undersurface. It is made of showy chlorite material, not observable, featuring deep maroon matrix material and interspersed reddish veins. This specimen is an early Woodland Period piece from Ross County, Ohio. Above it is a brownish-green pick banner that has some plow damage. The central drilled cavity has evidence of reed or bone drilling. It was found in Hancock County, Ohio. The remaining piece is a high luster pick bannerstone with bright green chlorite inclusions imbedded in a mica schist. It is very vibrant looking and radiates color especially when subject to artificial lighting. Its surface is somewhat irregular due to material decomposition but as can be seen it remains a very showy specimen. The large central cavity exhibits reed or bone drilling. It is an Ohio artifact.

Figure 2 shows two chlorite tubular pipes. On the lower left is an unusually configured tubular pipe having a green chlorite tinted surface which covers calcite matrix material. As indicated chlorites are associated with calcite sometimes appearing as surface coatings or inclusive trace deposits. The bulbous pipe bowl probably was configured to both increase the size of the material chamber and better protect the pipe while it was in use. This chlorite specimen was found in Erie County, Ohio. The larger tubular example above and to its right is one of the most vividly colored chlorite pipe specimens from Ohio. As can be seen this 8 1/2 inch long tube pipe features various hues of interspersed orange, red and green chlorite materials throughout. The smoking chamber of this likely Archaic Period specimen shows a combination of both flint and hone or reed drilling. As can be noted the pipe tapers gradually with its largest diameter at the bowl end. The subject was once highly coveted by two well known collectors, Max Shipley and Dr. Gordon Meuser. It was found on the farm next to Max's childhood home in Madison County, Ohio. At some point Meuser provided the necessary incentives to the farm's owner and became the pipe's owner. Both Max Shipley and his father Frank badly wanted to add their neighbor's unique artifact to their collections. Max was eventually able to add it to his inventory of artifacts.

Figure 3 shows two more chlorite pipe specimens. On the left is a highly refined looking mottled gray and black chlorite handled pipe. It was featured in George West's much referenced pipe book published in the 1930's and was found in northern Ohio, listed as Ashtabula County. The bowl and stem intersect at right angles. An apparent hand hold extension was sculpted below the bowl. The mottled chlorite materials appear to be buried at different levels in the matrix material. Handled pipes were apparently products of the Late Middle Woodland Period and were especially represented in the eastern Great Lakes region in northeastern Ohio, Pennsylvania and New York state. The chlorite pipe to its right has mellow creamy orange coloration, an oily feel and an overall waxy appearance. The elbow pipe also features a flange-like offset feature in front of the bowl facing the smoker. This is a diagnostic design feature particularly incorporated on some Iroquoian pipes of the Late Prehistoric/Proto-Historic Periods. The feature was likely sculpted for both appearance and possibly heat diversion purposes. The subject pipe is from Jefferson County, New York and like its neighbor is a very eye-catching piece.

Chlorite was used in many locales to add to the visual appeal of local artifact designs. Because of the fragile material qualities of chlorites some specimens may have been treated mostly as keepsakes or representational specimens rather than practical tools. The rare use of chlorite suggests it was specially valued.

Figure 1
(Gehlbach)
Three chlorite artifacts; Maroon and red expanded center gorget, Ross County, Ohio; Light green and tan pick bannerstone, Hancock County, Ohio; green chlorite/mica schist pick bannerstone, Ohio.

Figure 2
(Gehlbach)
Two chlorite pipes; Bulbous looking green calcite/chlorite tube pipe, Erie County, Ohio; Orange, red and green mottled tube pipe, Madison County, Ohio.

Figure 3
(Gehlbach)
Two chlorite pipes; Mottled gray/black handled pipe, northern Ohio; cream/orange elbow pipe, Jefferson County, New York.